What is Hyperbaric Oxygen (HBO) Therapy?

Hyperbaric Oxygen Therapy (HBO) is breathing 100% oxygen while the whole body is pressurized to greater than sea level for a limited period of time. This usually takes place in a one (1) person chamber (monoplace) or a multiple person chamber (multiplace). HBO is the primary treatment for Carbon Monoxide Poisoning, Decompression Sickness, and Air Embolisms. It is also accepted as an adjunct treatment for many other conditions.
The physiological effects that describe what occurs during HBO can be broken down into five general categories:

1. **Mechanical Effect of Increased Pressure**: Any free gas that is trapped in the body will decrease in size as the pressure increases.
2. **Mass Action of Gases** or Gas wash out: If a body is flooded with a single gas, all others will tend to be washed out. This can cause an equilibrium shift in some chemical reactions that are important.
3. **Vasoconstriction**: The administration of oxygen at high pressure causes the blood vessels to constrict. This helps fight swelling and certain types of fluid loss. Even with this vasoconstriction, enough oxygen is carried by the blood for the tissue oxygen content to show a net increase.
4. **Anti-bacterial Effects**: Many of the defense mechanisms in the human body are dependent on oxygen. A low level of oxygen in the tissues reduces the effectiveness of the ingestion and killing of bacteria by the white blood cells. When a body is subjected to Hyperbaric Oxygen Therapy, reoxygenation of the tissue allows phagocytosis and the other defense mechanisms of the body to operate more effectively.
5. **Anti-ischemic Effect**: Hyperbaric Oxygen Therapy dissolves extra oxygen into the blood plasma. The increased level of oxygen promotes several beneficial effects:
    - The breakdown of old dead bone
    - The formation of new capillaries in wound areas
    - The breakdown of many complex toxins

    This anti-ischemic effect also helps ischemic tissue meet the increased metabolic needs that are necessary during healing.

What is NOT HBO Therapy?
Breathing 100% oxygen at sea level pressure / 1 Atmosphere (1 ATA) / 14.7 PSIA is not hyperbaric oxygen therapy. The body must be pressurized to receive the benefits of HBO.
Exposing parts of the body to 100% oxygen, also call topical oxygen, is not HBO.

Conditions Accepted for HBO Treatment
by the Undersea and Hyperbaric Medical Society (UHMS)

- Diabetic Wounds
- Ulcers (venous & decumitus)
- Gas Gangrene (clostridial)
- Osteomyelitis (refractory)
- Radiation Necrosis
- Anaerobic Infection (actinomycosis)
- Skin grafts or flaps (compromised)
- Necrotizing Soft Tissue Infections
- Air/Gas Embolus (acute)
- Exceptional Blood Loss (anemia)
- Burns
- Carbon Monoxide Poisoning
- Crush Injury
- Acute Traumatic Ischemias
- Cyanide Poisoning
- Decompression Illness

Hyperbaric Oxygen Therapy Links

Environmental Tectonics Corporation - The leading company that makes chambers. A great introductory web site
http://www.etcusa.com/hbo_intr.htm

Undersea & Hyperbaric Medical Society - The professional society for the study of hyperbaric oxygen therapy
http://www.uhms.org/

Hyperbaric Oxygen Chamber at Eisenhower Army Medical Center is under it's Emergency Medicine Department
http://www.ddeamc.amedd.army.mil/Clinical/clinic_srv.htm

Davis Hyperbaric Laboratory, Brooks AFB - Excellent site, this program has a military hyperbaric medicine fellowship.
http://wwwsam.brooks.af.mil/hyper/

Duke University Hyperbaric Medicine Program – Duke has been training fellows since 1963 and is seen by some as the world center for diving medicine and hyperbaric medicine. Also the home of Diver's Alert Network (DAN)
http://www.diversalertnetwork.org/

http://hyperbaric.mc.duke.edu/

The American College of Hyperbaric Medicine – The American Medical Association link to the specialty
http://www.hyperbaricmedicine.org/default2.htm